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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/810,020	03/16/2001	Robert Charles Downs	P0037US00	9097

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EXAMINER

SRIVASTAVA, KAILASH C

ART UNIT	PAPER NUMBER
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1651

DATE MAILED: 07/01/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application N .

09/810,020

Examiner

Kailash C. Srivastava

Applicant(s)

DOWNS, ROBERT CHARLES

Art Unit

1651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on April 21, 2003 as Paper Number 11.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 4,6,8-11,13,16-22 and 26-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,7,12,14,15 and 23-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachments

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6 and 9. 6) ☐ Other:

## DETAILED ACTION

1. Applicant's response filed April 21, 2003 as Paper Number 11 to election requirement in Office Action mailed March 19, 2003 as paper number 10 is acknowledged and entered.
2. Claims 1-31 are pending.

### ***Restriction/Election***

3. Applicant's election with traverse of Group I, Claims 1-15 and 23-25 in response filed April 21, 2003 as Paper Number 11 to election requirement in Office Action mailed March 19, 2003 as paper number 10 is acknowledged and entered. Applicant's election of species for Aa. Attaching a fermenter head to the sample vessels, Bab. Gene variant in a vector, Cb. Anaerobic fermentation, and Da. Centrifuging the fermented samples in the sample vessel that was used for fermentation in said response is also acknowledged and entered.

Applicant's traversal is on the grounds that the Examiner's restriction requirements do not conform to the governing law. Citing a myriad of Case Laws and court rulings, applicant argues that "pending claims 1-31 include one independent claim, which provides a method that includes performing a plurality of fermentations, each fermentation in a different vessel. The claimed method also includes performing a further processing step on a plurality of fermented samples where the sample is retained in the same sample vessel as the fermentation during the processing steps". Applicant's arguments have been fully considered but are not found persuasive, because the restriction requirement is to distinguishing different inventions, not to the claims. Furthermore, inventions claimed in groups II, III and IV, encompassing Claims 16-20, 21-22 and 26-31 respectively, are distinctly different and require different steps than the claims encompassed in invention group I. For example invention of Group II, encompassing Claims 16-20 can not possibly be performed in the same vessel as fermentation because of the degree of purity required to obtain a protein crystal suitable for X-ray crystallography, for if the crystallization is performed in the same vessel as fermentation, residual materials from fermentation would not give a protein crystal of the quality required for X-ray crystallography. Further, a reference that would anticipate the invention of one group would not necessarily anticipate or even make obvious another group. Finally, the condition for patentability is different in each case. Thus, it will be an undue burden to examine all of the inventive Groups in one application. Therefore, the restriction requirement is still deemed proper and is made FINAL.

Accordingly, Claims 4, 6, 8-11, 13, 16-22 and 26-31 are withdrawn from further consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03. Examiner suggests that the non-elected claims cited *supra* be canceled in response to this Office action to expedite prosecution.

4. Claims 1-3, 5, 7, 12, 14-15 and 23-25 are examined on merits.

### ***Information Disclosure Statement***

5. Applicants' Information Disclosure (i.e., IDS) filed **September 09, 2002** as paper number 6 has been made of record and considered.

### ***Claim Rejections - 35 U.S.C. § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. § 112:

***The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.***

7. Claims 12 and 14-15 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- In claim 12 is recited the limitation "fermentation is a bacterial fermentation, wherein a recombinant protein is expressed". There is insufficient antecedent basis for this limitation in the cited claim, because Claim 1 from which Claim 12 depends does not cite "fermentation is a bacterial fermentation, wherein a recombinant protein is expressed".
- In claim 14 is recited the limitation "method further comprises isolating recombinant proteins expressed during the fermentations after the further processing step". There is insufficient antecedent basis for this limitation in the cited claim, because Claim 1 from which Claim 14 depends does not cite "method further comprises isolating recombinant proteins expressed during the fermentations after the further processing step".
- In claim 15 is recited the limitation "wherein the recombinant proteins are isolated by Column chromatography". There is insufficient antecedent basis for this limitation in the cited claim, because Claim 14 from which Claim 15

depends does not cite a chromatographic method to isolate said recombinant protein.

### **Claim Rejections - 35 U.S.C. § 103**

8. The following is a quotation of 35 U.S.C. §103(a) which forms the basis for all obviousness rejections set forth in this Office action:

***(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.***

9. Claims 1-3, 5, 7, 12, 14-15 and 23-25 are rejected under 35 U.S.C. § 103 (a) as obvious over Roberts (U. S. Patent 6,197,517) in view of Rudenko et al. (WO97/15588).

Claims recite a method that comprises performing a plurality of fermentations, each fermentation in a different vessel, and subsequent to fermentation performing a further processing step in the same vessel as the fermentation, wherein a cell containing a recombinant protein is anaerobically cultivated. Subsequently, the recombinant protein is isolated.

Roberts teaches multiple fermentations to obtain a recombinant protein through culturing a microbial cell in which said recombinant protein is expressed. Subsequently, the proteins are purified with art-known techniques (Column 27, Lines 26-32).

Roberts, however, does not explicitly teach isolation and purification of said recombinant protein.

Rudenko et al. teach expression of a recombinant protein in either prokaryotic (e.g., bacteria) or eukaryotic (i.e., yeasts, fungi etc.) cells (abstract, Lines 2-10, Page 11, Lines 20-41) as well as isolation, purification and further characterization of a recombinant protein (Page 13, Lines 11-42). Rudenko et al. also teach that with their method of protein isolation and purification, 1-100 mg/ml of purified protein is obtained (Page 13, Lines 11-42).

Please note that the techniques and methods that Roberts and Rudenko et al. teach are applicable to a single or to a plurality of samples. Thus, the prior-art references intrinsically teach cultivation of a plurality of recombinant protein carrying cells that are expressed in a eukaryotic or prokaryotic expression system comprising a gene fragment and isolation, purification and characterization of those proteins.

One having ordinary skill in the art would have been motivated to modify the teachings of Roberts (Column 27, Lines 26-32) according to the teachings from Rudenko et al., because both Roberts and Rudenko teach expression of a recombinant protein in a host cell (abstract, Lines 2-10, Page 11, Lines 20-41) and further isolation and purification of said recombinant protein. While Roberts teaches multiple fermentations to obtain a recombinant protein through culturing a microbial cell in which said recombinant protein is expressed and subsequent isolation of said protein (Column 27, Lines 26-32), Rudenko et al. remedy the deficiencies in teachings of Roberts by teaching that a recombinant protein is expressed in a bacterial cell (abstract, Lines 2-10, Page 11, Lines 20-41) and further teach the methods for isolation, purification and further characterization of said recombinant protein expressed in a bacterial cell (Page 11, Lines 20-41).

Thus, it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to modify teachings from Roberts of cultivating a microbial cell in multiple fermentation, wherein a recombinant protein is expressed in said microbial cell by incorporating the teachings from Rudenko et al. to further isolate and purify said recombinant protein.

From the teachings of the cited references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

None of the cited prior art methods clearly teach that the cells were cultivated under anaerobic conditions or the recombinant protein was isolated by column chromatography. However, the adjustment of particular working conditions (such as mode of cultivation, means to isolate or purify a protein) is deemed merely a matter of judicious selection and routine optimization of a result oriented parameter which is well within the purview of the skilled artisan and therefore obvious under 35 U.S.C. § 103 (a).

## Conclusion


14. No Claims are allowed.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Kailash C. Srivastava whose telephone number is

(703) 605-1196. The examiner can normally be reached on Monday-Thursday from 7:30 A.M. to 6:00 P. M. (Eastern Standard Time or Eastern Daylight Saving Time).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn, can be reached on (703) 308-4743 Monday through Thursday. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3014.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

  
Kallash C. Srivastava, Ph.D.  
Patent Examiner  
Art Unit 1651  
(703) 605-1196

June 30, 2003

  
LEON B. LANKFORD, JR.  
PRIMARY EXAMINER